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Anna Kron

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EXAMINER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANNA KRON, OVE NORDIN, STURE JAN NILSSON,
and CHRISTINA BERGLUND

Appeal 2010-001826
Application 10/758,540
Technology Center 1700

Before CHARLES F. WARREN, MARK NAGUMO, and
KAREN M. HASTINGS, *Administrative Patent Judges*.

HASTINGS, *Administrative Patent Judge*.

DECISION ON APPEAL¹

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

Appellants seek our review under 35 U.S.C. § 134 of the Examiner's final decision rejecting claims 1-23. An oral hearing was held on October 13, 2010. We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We AFFIRM.

Claim 1 is illustrative of Appellants' invention:

1. A process for the production of expandable thermoplastic microspheres comprising a step of contacting microspheres comprising a thermoplastic polymer shell encapsulating a propellant, said polymer shell being obtained by polymerising ethylenically unsaturated monomers, and further comprising residual monomers, with an agent reacting directly or indirectly with at least part of said residual monomers, wherein said agent is selected from the group consisting of oxo acids of sulfur, salts and derivatives thereof, comprising at least one sulfur atom having at least one free electron pair and binding three oxygen atoms.

The Examiner maintains, and Appellants appeal, the rejection of claims 1-23 under 35 U.S.C. § 103(a) as unpatentable over the combined prior art of Nakayama² and Miller³.

Appellants argue the rejected claims as a group (App. Br. 3-10). Thus, we select independent claim 1 as the representative claim on which our discussion will focus.

ISSUE ON APPEAL

Did the Examiner err in determining that it would have been obvious to use the claimed sulfite reducing agent, as exemplified in Miller for reducing a residual acrylonitrile monomer, in order to reduce the residual unreacted acrylonitrile monomer in the microsphere shells of Nakayama?

We answer this question in the negative.

² US 4,287,308, issued Sep. 01, 1981.

³ US 4,255,307, issued Mar. 10, 1981.

PRINCIPLES OF LAW

In assessing whether a claim to a combination of prior art elements would have been obvious, the question to be asked is whether the improvement of the claim would have been regarded by persons having ordinary skill in the art as being more than the predictable use of prior art elements according to their established functions. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007). The analysis need not seek out precise teachings directed to the specific subject matter of the claim, for it is proper to take account of the inferences and creative steps that a person of ordinary skill in the art would employ. *Id.* at 418.

“For obviousness under § 103, all that is required is a reasonable expectation of success.” *In re O'Farrell*, 853 F.2d 894, 903-04 (Fed. Cir. 1988).

ANALYSIS

with Factual Findings

We have thoroughly reviewed each of Appellants' arguments for patentability of claim 1. However, we are in agreement with the Examiner that the subject matter of claim 1 would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. Accordingly, we will sustain the Examiner's ground of rejection for essentially those reasons expressed in the Answer, including in the Response to Argument section. We rely upon the factual findings and reasoning of the Examiner (Ans. 3-13; Final Office Action pp. 2-5) and add the following primarily for emphasis.

Appellants' main contention in the briefs is that it would not have been obvious to use the sulfite reducing agent of Miller in the process of

Nakayama because Miller reduces residual acrylonitriles in an aqueous dispersion instead of in expandable microspheres as in Nakayama (App. Br. 8). This argument is of no persuasive merit for reasons well stated by the Examiner; namely that the chemical reaction is expected to be the same regardless of whether the polymer product is in the form of a small polymer particle or an expandable microsphere (Ans. 10). Appellants have provided neither persuasive technical reasoning nor evidence to the contrary (*see generally* App. Br.; Reply Br.). Notably, Miller teaches “residual acrylonitrile dissolved in acrylonitrile polymers *and/or* water in which the acrylonitrile polymers are polymerized” can be reduced by adding an alkali sulfite (Miller col. 1, ll. 30-37; emphasis added). Accordingly, Miller demonstrates that alkali sulfite is a known reducing agent for acrylonitrile monomers dissolved in polyacrylonitrile (*id.*). Upon properly considering the prior art references as a whole, we fully agree with the Examiner that one of ordinary skill in the art would have been led to employ the alkali sulfite taught by Miller in Nakayama’s process, with a reasonable expectation of successfully reducing acrylonitrile monomer materials as required by Nakayama.

Furthermore, “[a] person of ordinary skill is also a person of ordinary creativity, not an automaton.” *KSR* at 420-21. The Examiner’s position is reasonable in view of the applied prior art, and Appellants have not provided any convincing technical reasoning nor evidence that one of ordinary skill in the art would not have, using no more than ordinary creativity, successfully used sodium sulfite as a known alternative reducing agent to the sodium sulfide of Nakayama (*see generally* App. Br.; Reply Br.). In this context, the use of sodium sulfite would have been the use of a known technique in

accordance with its known function for the predictable result of reducing residual acrylonitrile monomer present in the microspheres of Nakayama. *See KSR*, 550 U.S. at 415-16 (“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”).

To the extent Appellants’ arguments can be construed as rebuttals of a *prima facie* case of obviousness based on unexpected results, we note that patentability cannot be premised on limitations that are not recited in the claims. *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (“appellant's arguments fail from the outset because, . . . they are not based on limitations appearing in the claims.”).

Furthermore, when considering whether proffered evidence demonstrates patentability, a side-by-side comparison of the claimed invention with the closest prior art which is commensurate in scope with the claims is needed, with an explanation as to why the results would have been unexpected by one of ordinary skill in the art. *See e.g., In re Baxter Travenol Labs.*, 952 F.2d 388, 392 (Fed. Cir. 1991); *In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984); and *In re Grasselli*, 713 F.2d 731, 743 (Fed. Cir. 1983).

Notably, Appellants have not disputed the Examiner’s findings that a) Appellants’ results regarding the use of sodium sulfide as the reducing agent as in Nakayama do not indicate any problem with expansion; b) it is expected that sodium sulfide will result in a dark color and bad smell as these are known characteristics of sodium sulfide, and b) it is well known and thus expected that sulfites are white and non-smelly (Ans. 11-13; *see generally* App. Br., Reply Br.).

We conclude that Appellants have failed to demonstrate harmful error in the Examiner's rejections.

Accordingly, the evidence as a whole supports the Examiner's conclusion of obviousness, and on the record before us, we sustain the § 103 rejection of claims 1-23 as maintained by the Examiner.⁴

DECISION

We affirm the Examiner's § 103 rejections.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1).

AFFIRMED

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⁴ Only those arguments actually made by Appellants have been considered in this decision. Arguments which could have made but Appellants chose not to make have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2008).